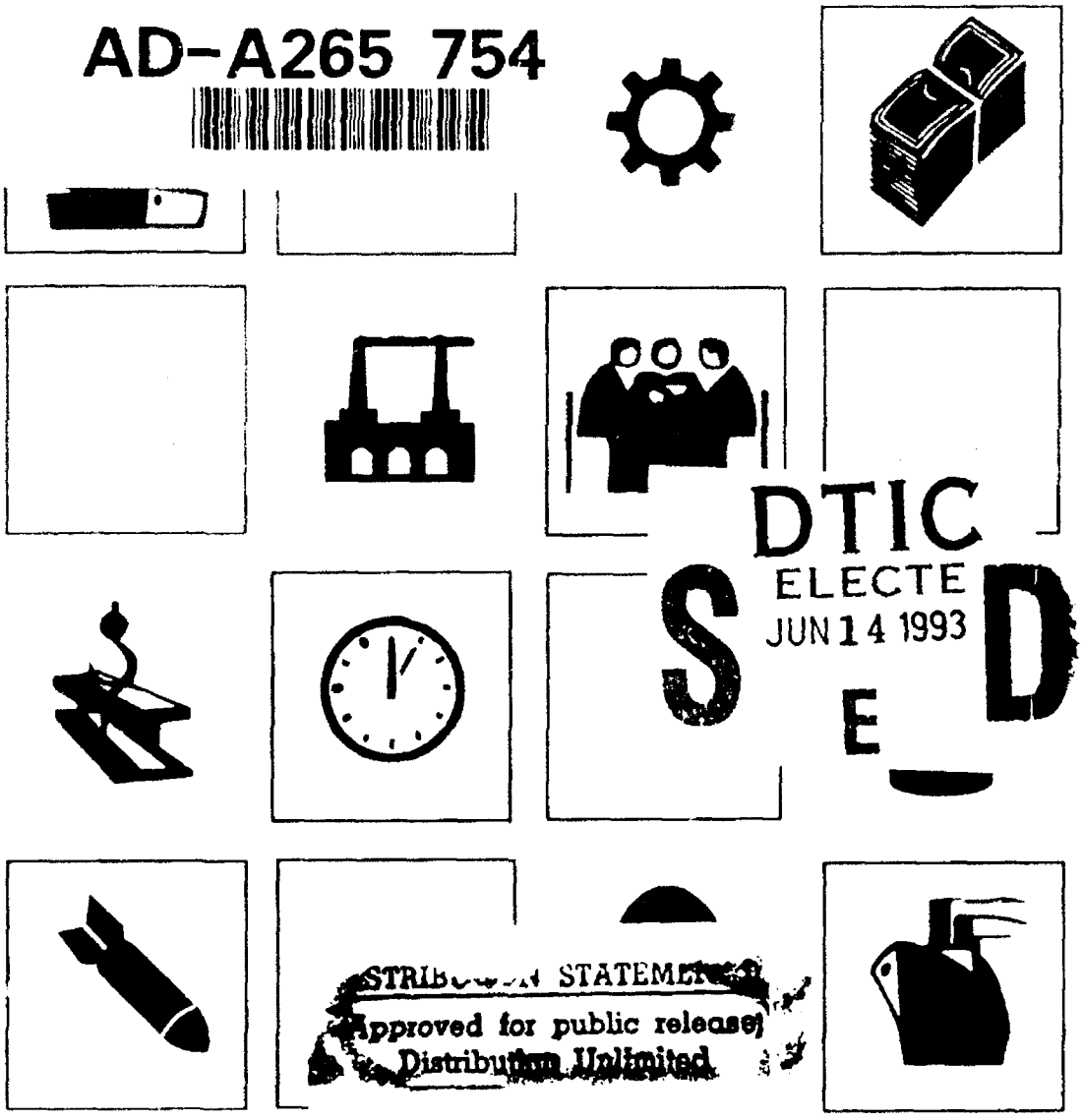
INTRODUCTION TO DEFENSE ACQUISITION MANAGEMENT

by Joseph H. Schmoll



Second Edition

DSMC Press

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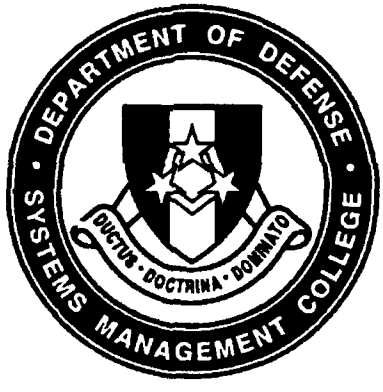

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PREFACE

This second edition of *Introduction to Defense Acquisition Management* supersedes the first edition published by the Defense Systems Management College (DSMC) in 1989. Although it retains much of the material contained in the 1989 version, this edition has been completely revised and updated to reflect the latest Department of Defense acquisition policies and procedures as described in the 23 February 1991 "DOD 5000 series" of directives and instructions. The pamphlet also contains a new section on the Requirements Generation Process, one of the three major decision-making support systems with which the successful program manager must become familiar.

The pamphlet was designed to be both a quick study guide to refresh the skilled and experienced acquisition management professional as well as an introduction to the world of systems acquisition management for the newcomer. It focuses on Department of Defense-wide applications rather than on the details of how a specific weapons system program is managed.

Suggested additions, deletions and other changes are encouraged from the readers of this publication. Send them to the Chairman, Acquisition Policy Department, DSMC, Fort Belvoir, Virginia 22060-5426.

Ernst P. Vollmer
Chairman
Acquisition Policy Department

Joseph. H. Schmoll
Acquisition Policy Department
Author

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INTRODUCTION TO DEFENSE ACQUISITION MANAGEMENT

A basic understanding of defense acquisition begins with a definition. The **defense acquisition system** is:

> *A single uniform system whereby all equipment, facilities, and services are planned, developed, acquired, maintained and disposed of by the Department of Defense (DOD). The system includes policies and practices that govern acquisition, identifying and prioritizing resource requirements, directing and controlling the process, contracting, and reporting to Congress.*

The **Defense Acquisition System** acquires weapon systems and other items used by the armed forces to meet threats to national security. A weapon "**system**" is a system to assist the Department of Defense in conducting its mission of deterring (or in the case deterrence fails, winning) war. "**Acquisition**" includes research, development, test and evaluation, production, procurement and operations and support. The word "procurement," which is "the act of buying goods and services for the Government," is often (and mistakenly) considered synonymous with "acquisition". The term "defense acquisition" generally applies only to weapon systems processes, procedures and end products. However, non-weapon items and services acquired by the DOD, such as studies, passenger vehicles, supplies, construction and waste removal, are also "acquired" and are thus considered part of the acquisition process. "**Management**" includes a set of tasks required to accomplish a specified project.

Another way of looking at **Systems Acquisition Management** is by looking at individual elements which comprise each of these terms:

INTRODUCTION TO DEFENSE ACQUISITION MANAGEMENT

System	Acquisition	Management
• Hardware	• Determine Need	• Plan
• Software	• Design	• Organize
• Logistic Support	• Develop	• Staff
• Manuals	• Test	• Control
• Facilities	• Produce	• Lead
• Personnel	• Field	
• Training	• Support	
• Spares	• Improve	
	• Replace	
	• Dispose	

THE ROLE OF CONGRESS, THE EXECUTIVE BRANCH AND INDUSTRY IN DEFENSE ACQUISITION

The three principal participants (players) in defense acquisition include the **Executive Branch** of the Federal Government, the **Congress** and **Industry** (defense contractors). Each element plays a significant role and brings a unique perspective to the process. Each of these participants, in terms of perspectives, method of operation and objectives, is discussed briefly below.

Executive Branch: Principal players within the Executive Branch include the President, the Department of Defense (DOD), the Office of Management and Budget (OMB), the Department of State and the National Security Council (NSC).

Perspective	Method Of Operation	Objectives
• **Formulate, direct, & execute national security policy**	• **Issue directives/ regulations**	• **Satisfy national security needs and objectives**
• **Want to be re-elected**	• **Contract with Industry**	• **Maintain a balanced force structure**
• **Patriotic**	• **Command and control of unified and specified commands through CJCS***	• **Field weapon systems to defeat the threat**
• **Personal ambition**	• **Negotiate with Congress**	• **Prevent undue congressional interest/scrutiny**
	• **USD(A) decides on major defense acquisition programs**	• **Eliminate fraud, waste and abuse in acquisition**

* Chairman, Joint Chiefs of Staff

Legislative Branch: The Legislative Branch (Congress) includes the "Defense Committees": the Senate and House Armed Services Committees (the Authorization Committees) and the Defense Subcommittees of the House and Senate Appropriation Committees; the Senate and House Budget Committees; other committees having legislative oversight of defense activities; individual members of Congress; the Congressional Budget Office and the General Accounting Office (GAO).

Perspective	Method Of Operation	Objectives
• Represent interests of their constituents	• Debate/vote/pass legislation	• Balance defense and social needs
• Two party system	• Conduct hearings	• Distribute defense dollars by district
• Checks and balances	• Set ceilings (manpower and equipment)	• Control public debt
• Personal ambition	• Establish oversight committees	• Maximize competition
• Want to be reelected	• Raise taxes/provide funds	• Control industry profits
• Patriotic	• Excludes itself from various laws including:	• Control fraud, waste, abuse and mismanagement
• Concerned for world peace	– Civil Rights Act	
	– Equal Employment Opportunity Act	
	– Freedom of Information Act	
	– Privacy Act	
	– Ethics in Government Act	

Industry: The defense industry (contractors) includes large and small organizations providing goods and services to DOD.

Perspective	Method of Operation	Objectives
• Represent interests of the owners or stockholders	• Respond to solicitations	• Profit and growth
• Capitalism	• Propose solutions	• Cash flow
• Patriotism	• Independent R&D	• Market share
	• Design systems	• Stability
	• Produce systems	• Technological achievement

Numerous external factors impact on and help shape every major defense acquisition program, creating an environment over which no single person has control. These factors include forces, policies, decisions, regulations, reactions and emergencies. Other factors include Political Action Committees (PACs), the media, public sentiment and emotions, world opinion and the ever present "threat" to national security. Often, these factors work at opposite purposes. Understanding and dealing with the environment they create is one of

the greatest challenges for defense acquisition managers. Figure 1 illustrates some of the interrelationships among these key players and also shows the program manager in the middle of this "tortured triangle," faced with the monumental task of managing his program in the midst of all these competing interests.

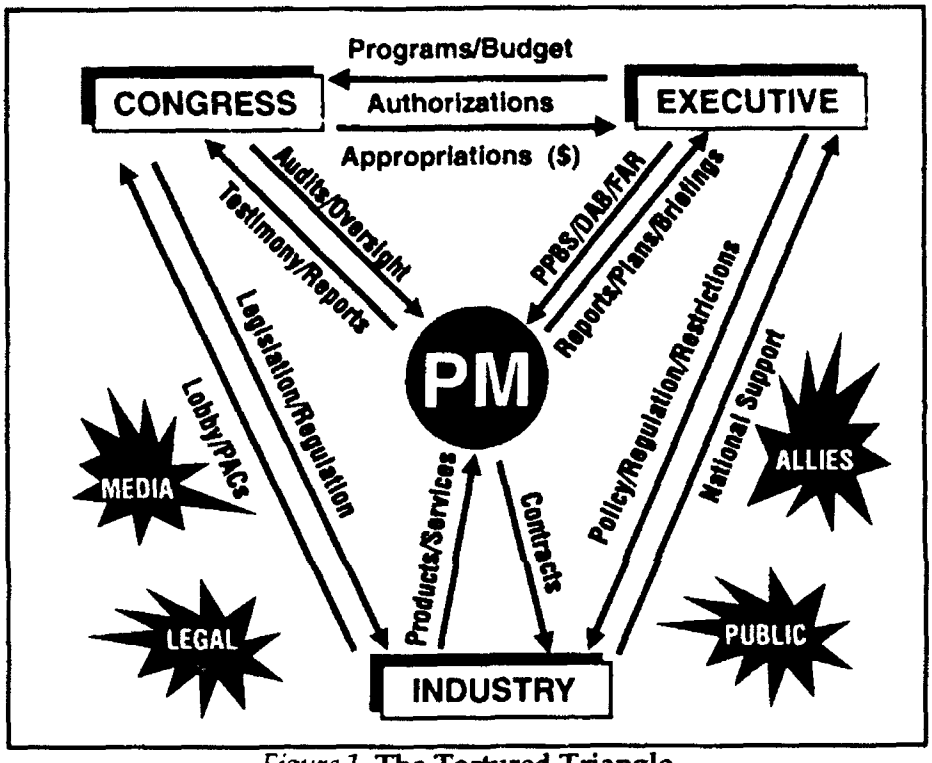

Figure 1, **The Tortured Triangle**

SUCCESSFUL WEAPON SYSTEM ACQUISITION PROGRAM

A **successful weapon system acquisition program** is one that places a **capable** and **supportable** weapon in the hands of a user **when** and **where it is needed,** and does so **within affordable resources.** The ideal outcome necessary for successful long-term relationships between the three participants is "**Win-Win,**" wherein each participant gains something of value for participating. Depending on your perspective, "success" can take many different forms:

For the *program manager,* success means a system which is delivered on time, within cost and meets its technical requirements.

For the *OSD staff,* success means a program which does not attract undue congressional scrutiny, and one which satisfies national security objectives and provides a balanced force structure.

For the *Congress*, **success** means a system which strikes a balance between defense and social needs, provides a fair distribution of defense dollars by state/district and which has not involved any scandals.

For *industry*, success means a system which provides a positive cash flow, a satisfactory return on investment and one which preserves the contractor's competitive position in the industry.

For the *user*, success means a system which is effective in combat, and easy to operate and maintain.

AUTHORITY FOR DEFENSE SYSTEMS ACQUISITION

The authority for DOD to conduct systems acquisition (i.e., to develop, produce and field weapons systems) flows from four principal sources. These "sources" include the **Law** (legal basis), **Executive Direction, OMB Circular A-109** and the **Federal Acquisition Regulation (FAR)**. A brief synopsis of each of these follows.

The Law: Statutory authority from Congress provides the legal basis for systems acquisition. Some of the most prominent laws are:

- **Armed Services Procurement Act** (1947), as amended, the original law, now essentially replaced by subsequent legislation.
- **Small Business Act** (1963), as amended.
- **Office of Federal Procurement Policy Act** (1983), as amended.
- **Competition in Contracting Act** (1984).
- **DOD Procurement Reform Act** (1985).
- **DOD Reorganization Act of 1986** (Goldwater-Nichols).
- **Title 10, United States Code** (U.S. Armed Forces and DOD Organization).
- **Annual authorization and appropriations legislation**, which in recent years has contained substantial new or amended statutory requirements.

Executive Direction: Authority and guidance also emanates from the Executive Branch in the form of executive orders, national security directives and other departmental or agency regulations. *Examples include:*

- **Executive Order** (E.O.) 12352 (1982), which directed procurement reforms and establishment of the FAR.

- **National Security Decision Directive** (NSDD) 219 (1986), which directed implementation of recommendations of the President's Blue Ribbon (Packard) Commission on Defense Management.
- **National Security Review** (NSR) 11 (1989), which directed the Defense Management Review (DMR) and subsequent Defense Management Report to the President.

OMB Circular A-109: This document defines the system acquisition process as a "sequence of acquisition activities starting from the agency's mission needs, with its capabilities, priorities and resources (dollars), extending through introduction into use or successful achievement of program objectives." It establishes the basic acquisition policy for federal agencies, particularly for major programs, and includes requirements to:

- Express needs and objectives in mission terms.
- Emphasize competitive exploration of alternative system design concepts.
- Communicate with Congress early (and frequently).
- Establish clear lines of management authority, and designate a program manager for each major program.
- Designate an agency acquisition focal point.
- Avoid a premature commitment to full scale development and production.

Federal Acquisition Regulation (FAR): The FAR is the primary regulation for use by all federal agencies for acquisition of supplies and services with appropriated funds. This document, published in 1984, consolidated the major procurement regulations of the various departments and agencies. The intent was to standardize content and decrease the volume of regulatory guidance and to establish a consistent set of procurement rules throughout government. The FAR applies to acquisition of all goods and services. It directs the defense program manager in many ways, including contract-award procedures, acquisition planning, warranties and establishing guidelines for competition. Besides the FAR, each agency has a supplement to describe its own particular ways of doing business. The DOD's supplement is called the DFARS (Defense Federal Acquisition Regulation Supplement).

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DEPARTMENT OF DEFENSE ACQUISITION POLICY

The Department of Defense has implemented the provisions of OMB Circular A-109 via "The 5000 series." These documents, which guide defense acquisition, include:

DOD Directive 5000.1 (Defense Acquisition), the broad policy directive.

DOD Instruction 5000.2 (Defense Acquisition Management Policies and Procedures), which implements this policy.

DOD 5000.2-M (Defense Acquisition Management Documentation and Reports), the "how-to" manual for required documentation, including formats.

This pamphlet reflects the 23 February 1991 version of these documents. Related major policy directives are DOD Directive 5134.1 (Under Secretary of Defense (Acquisition)), 30 September 1992, and DOD Directive 5000.49 (Defense Acquisition Board), 11 September 1989.

DOD Directive 5000.1, approved and signed by the Deputy Secretary of Defense, establishes broad policies which govern acquisition of major, non-major and highly sensitive classified defense acquisition programs. It attempts to rationalize and explain the interfaces between the **Requirements Generation Process**, the **Acquisition Management System** and the **Planning, Programming and Budgeting System (PPBS)**. These systems and their interfaces (i.e., intersections) are illustrated in Figure 2, on the following page.

As indicated on the figure, the three *"decision-making support systems"* must interact and interface with one another in order for the acquisition process to work effectively. **The first interface between the Requirements Generation System and the Acquisition**

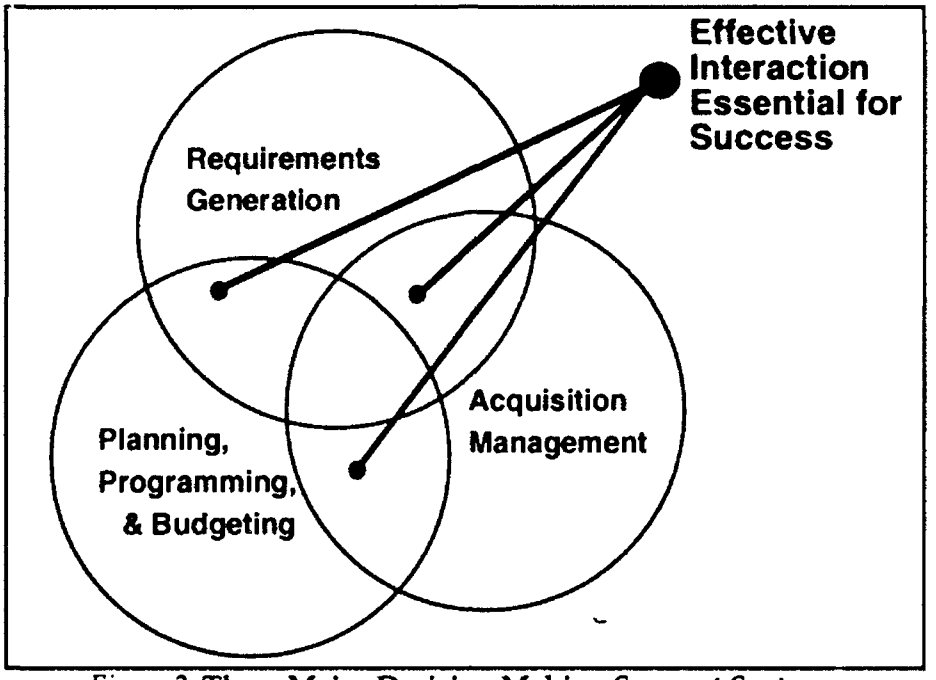

Figure 2, **Three Major Decision Making Support Systems**

Management System occurs at Milestone 0, and this interface is supported by a review by the Joint Requirements Oversight Council (JROC). The JROC (discussed in detail in Section 3 of this pamphlet) reviews requirements prior to each milestone review by the Defense Acquisition Board (DAB). **Milestone I marks the initial interface between the Acquisition Management System and the PPBS.** ***Milestone I also marks program initiation,*** with a major new start issue paper provided to the Defense Planning and Resources Board by the Under Secretary of Defense for Acquisition. Subsequent interfaces between the Acquisition Management and Planning, Programming and Budgeting Systems occur at each milestone via the affordability assessments. **Formal interface between the Requirements Generation System and the PPBS occurs every 2 years when the Military Departments and Defense Agencies submit their Program Objectives Memoranda (POMs).** Each of these systems, or processes, is addressed separately and in detail in sections 4, 5 and 6, respectively, of this pamphlet.

DODD 5000.1 also includes the following broad policies:

- Long-range planning will be based on best estimates of future fiscal resources.
- Mission needs shall be initially expressed in broad operational capability terms.

- Acquisition process shall be structured in discrete phases separated by major decision points.
- A full range of alternatives must be considered before starting a new acquisition program.
- Sensitive information and technologies must be identified early and protected.
- Acquisition strategies shall be tailored to accomplish program objectives and control risk.
- Risk and risk management shall be addressed at each milestone decision point.
- Contract type must permit equitable and sensible allocation of risk between government and industry.
- Broad cost, schedule, and performance parameters will be established at the new start decision, then refined and expanded for subsequent program baselines.
- Competition will be used to the maximum extent practicable.
- Short and clear lines of authority and accountability will be established.
- Milestone decisions will be delegated to the lowest levels deemed appropriate.
- Boards, councils, committees and staffs may provide advice and assessments, but shall not issue programmatic direction, nor impede the orderly progress of programs through the acquisition process.
- Systems, logistics and materiel commands shall focus on supporting deployed forces, managing non-PEO programs, providing support services to PEOs and PMs, and managing acquisition-related activities such as test, laboratory and support centers.
- Each military department shall establish an independent operational test activity.

DOD Instruction 5000.2 provides detailed procedures necessary to implement the policies of DODD 5000.1. It discusses processes involved with the following acquisition management functional areas:

- Requirements Evolution and Affordability
- Configuration and Data Management
- Acquisition Planning and Risk Management

- Business Management and Contracts
- Engineering and Manufacturing
- Test and Evaluation
- Special Situations: Defense Enterprise Programs, Joint Programs and Assignment of Program Oversight
- Logistics and Other Infrastructure
- Defense Acquisition Board Process

DODI 5000.2 also describes a model consisting of five (5) major milestones and five (5) phases of the *"life-cycle management system."* These phases and milestones are illustrated and described in greater detail in Section 5 of this pamphlet.

DOD 5000.2-M contains formats of documents required for milestone decision reviews as well as the formats for periodic reports and certifications.

3

DEFENSE ACQUISITION MANAGEMENT ORGANIZATIONS

BACKGROUND

Packard Commission: Initiated by Executive Order 12526, the 1985-86 President's Blue Ribbon Commission on Defense Management was chaired by David Packard, former Deputy Secretary of Defense. This effort primarily involved a review of the overall defense acquisition process. Reporting to the President in mid-1986, the Commission recommended creation of a single position responsible for acquisition (the USD(A)) and establishment of a streamlined reporting chain from the program manager to the acquisition decision authority within DOD (the USD(A)). The Packard Commission recommendations were approved by President Reagan and he directed their implementation via National Security Decision Directive (NSDD) 219 in 1986.

Defense Management Review: A follow-on assessment of defense acquisition management was initiated by President Bush in 1989 via National Security Review (NSR) 11. This assessment, known as the *Defense Management Review* (DMR), reiterated the Packard Commission findings and was the basis for the February 1991 issue of DODD 5000.1, DODI 5000.2 and DOD 5000.2-M. One of the major recommendations from the Packard Commission and the subsequent DMR was to streamline the program manager's reporting chain. The resultant *"four-tier"* reporting structure is illustrated in Figure 3, on the following page.

This structure provides a clear chain of authority running from the ***Under Secretary of Defense for Acquisition (USD(A))*** through full time ***Component Acquisition Executives (CAEs)*** and full time ***Program Executive Officers (PEOs)*** to the individual ***program managers*** of Major Defense Acquisition Programs. The services have chosen somewhat different approaches for implementing this policy.

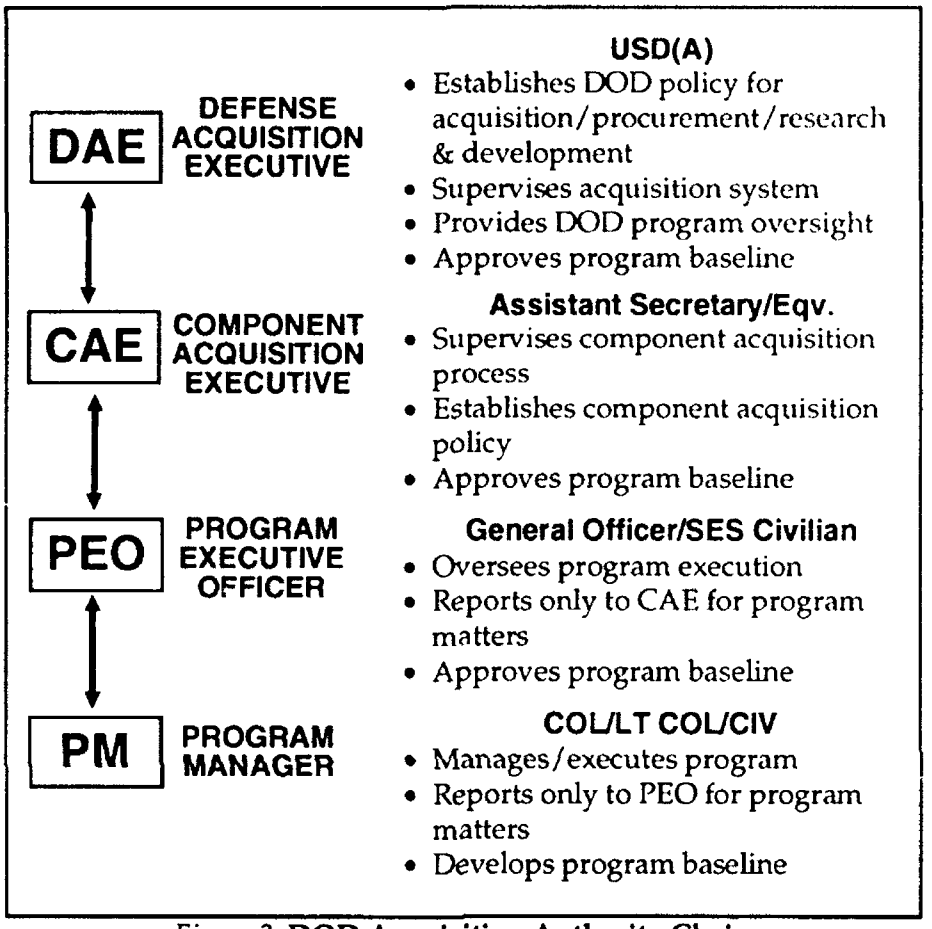

Figure 3, **DOD Acquisition Authority Chain**

Program Executive Officers: The position and function of the ***Program Executive Officer (PEO)*** was established in 1986, based on the Packard Commission report. The Army took the lead in creating the PEO structure, shortly after the Packard Commission findings were released. There have been some refinements of the Army's PEO structure since 1987, and the Army currently has 10 PEOs, responsible for about 32 major and 117 non-major programs. The Navy implemented the PEO structure in 1986 by dual-hatting the Systems Command Commanders as PEOs for assigned programs. In order to comply with the 1989 DMR, the Navy established eight PEOs separate from the Systems Commands. The Navy also has four Direct Reporting Program Managers (DRPMs) who report directly to the Navy Acquisition Executive. Navy PEOs are responsible for about 30 major and 48 related non-major acquisition programs. The Air Force, like the Navy, had originally dual-hatted its Product Division Commanders as PEOs. In order to comply with the DMR, the Air

Force subsequently established six PEOs (separate from the Product Division structure), responsible for about 36 major and non-major programs.

Service (Component) Acquisition Executives: The senior official in each Service responsible for acquisition matters under the Service Secretary is the ***Service Acquisition Executive (SAE), also known as the Component Acquisition Executive (CAE).*** The ***SAE in the Army is the Assistant Secretary of the Army for Research, Development and Acquisition.*** The ***Navy's (and Marine Corps') acquisition executive is the Assistant Secretary of the Navy for Research, Development and Acquisition.*** In the ***Air Force, the SAE is the Assistant Secretary of the Air Force for Acquisition.*** The SAE's role is similar to that of the DAE at the OSD level (see Figure 3). The SAE reports to the Service Secretary administratively and to the DAE for acquisition management matters. Other DOD agencies, including the Defense Logistics Agency, the Special Operations Command and the Strategic Defense Initiative Organization, have Component Acquisition Executives who make acquisition decisions for their component's programs.

> *Both major defense acquisition programs destined for review/approval by the Under Secretary of Defense for Acquisition and other programs reviewed by the services follow the same basic review process, but the final decision authority is at a lower level for the latter programs.*

Under Secretary of Defense for Acquisition (USD(A)): Title 10, United States Code, Section 133 establishes the position of Under Secretary of Defense for Acquisition (USD(A)). The USD(A) is the principal acquisition official of the Department and principal acquisition advisor to SECDEF. In this capacity the USD(A) serves as the ***Defense Acquisition Executive (DAE) and the Defense Procurement Executive.*** *For acquisition matters, the USD(A) takes precedence over the Secretaries of the Services and ranks number three within the Department of Defense (directly below the SECDEF and Deputy SECDEF).*

The ***responsibilities of the USD(A)*** are defined in DODD 5000.1 as follows:

- Establishes and publishes acquisition management policies and procedures that supplement and implement the provisions of DODD 5000.1.
- Prepares long-range investment area analyses.
- Coordinates the funding for concept direction studies.

In addition, *USD(A) duties* are to:

- Supervise the entire DOD acquisition system.
- Chair the Defense Acquisition Board.
- Develop acquisition program guidance and ensure compliance with established acquisition policy and procedures.
- Serve as National Armaments Director and Secretary of Defense representative to the Four Power Conference.
- Administer the Defense Acquisition Executive Summary (DAES) and the Cost/Schedule Control Systems Criteria (C/SCSC) systems.
- Establish policy, in conjunction with the Assistant Secretary of Defense for Force Management and Personnel (ASD(FM&P)), for the training and career development of acquisition personnel.

Figure 4, (page 15) illustrates the current USD(A) organization.

Several players within this organizational structure warrant additional discussion. The ***Director of Defense Research and Engineering (DDR&E)*** is responsible for oversight of all basic research, exploratory development and advanced technology development. Oversight of research associated with ongoing major defense acquisition programs is the responsibility of the DAB Committees (discussed in a subsequent paragraph). The ***Director of Test and Evaluation*** oversees defense acquisition program developmental testing. In addition to those offices mentioned above, there are several other DOD organizations that play a critical role in defense acquisition management. These are briefly discussed in the following paragraphs, and are depicted in Figure 5 (page 16).

Joint Requirements Oversight Council (JROC): The role of the JROC has increased significantly as a result of the *Defense Management Review*. They now review Major Defense Acquisition Programs (MDAPs) at each milestone prior to the DAB, and are primarily concerned with requirements and performance baseline issues. The JROC allows the users (including unified and specified commands) direct access into the DOD acquisition process.

The JROC is chaired by the ***Vice Chairman of the Joint Chiefs of Staff*** and includes the following members:

- Vice Chief of Staff, US Army
- Vice Chief of Staff, US Air Force

- Vice Chief of Naval Operations
- Assistant Commandant, US Marine Corps

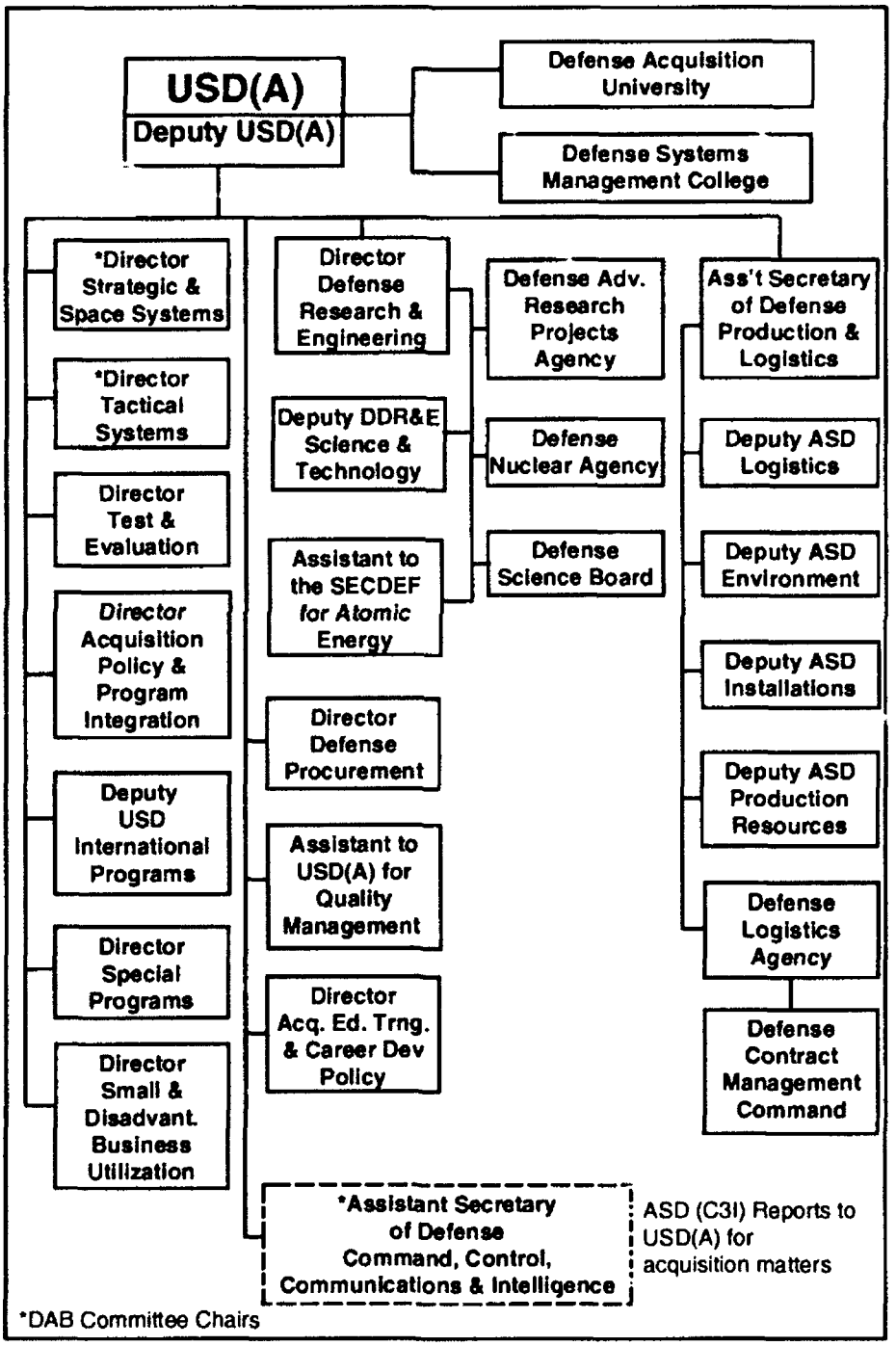

Figure 4, **Office of the Under Secretary of Defense (Acquisition)**

In addition to his role as **Chairman of the JROC**, the *Vice Chairman of the JCS serves as Vice Chairman of the DAB.*

Defense Planning and Resources Board (DPRB): This organization replaced the old Defense Resources Board. The DPRB is the DOD's resource organization and as such plays a major role in the Planning, Programming and Budgeting System (PPBS) (see Section 6), reviewing the service and defense agency Program Objectives Memoranda (POMs) in the even-numbered calendar years and conducting execution reviews in the odd-numbered calendar years. The Deputy Secretary of Defense chairs the DPRB, and key members include the Under Secretaries of Defense for Acquisition ((USD(A)) and Policy (USD(P)), the OSD Comptroller, the Assistant Secretary of Defense for Program Analysis and Evaluation (ASD (PA&E)), and the Director of Defense Research and Engineering (DDR&E).

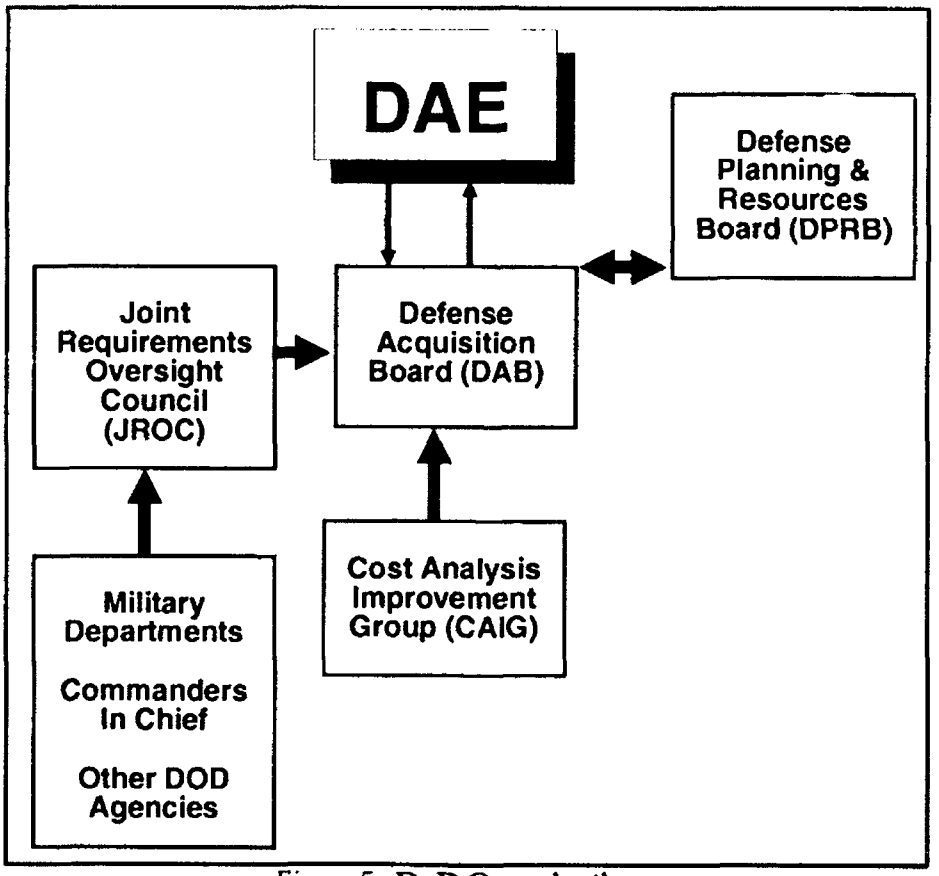

Figure 5, **DoD Organizations**

Cost Analysis Improvement Group (CAIG): The CAIG is an *ad hoc* group chartered by the *ASD (PA&E).* Its function is to provide an assessment, prior to each milestone review of defense acquisition

programs, of the program life-cycle cost estimate and the service independent cost estimate.

THE DAB, DAB COMMITTEES AND THE ACQUISITION LIFE-CYCLE PROCESS

Defense acquisition programs are grouped into one of five *Acquisition Categories (ACATs)* based on their dollar value and milestone decision authority (MDA) as illustrated in Figure 6.

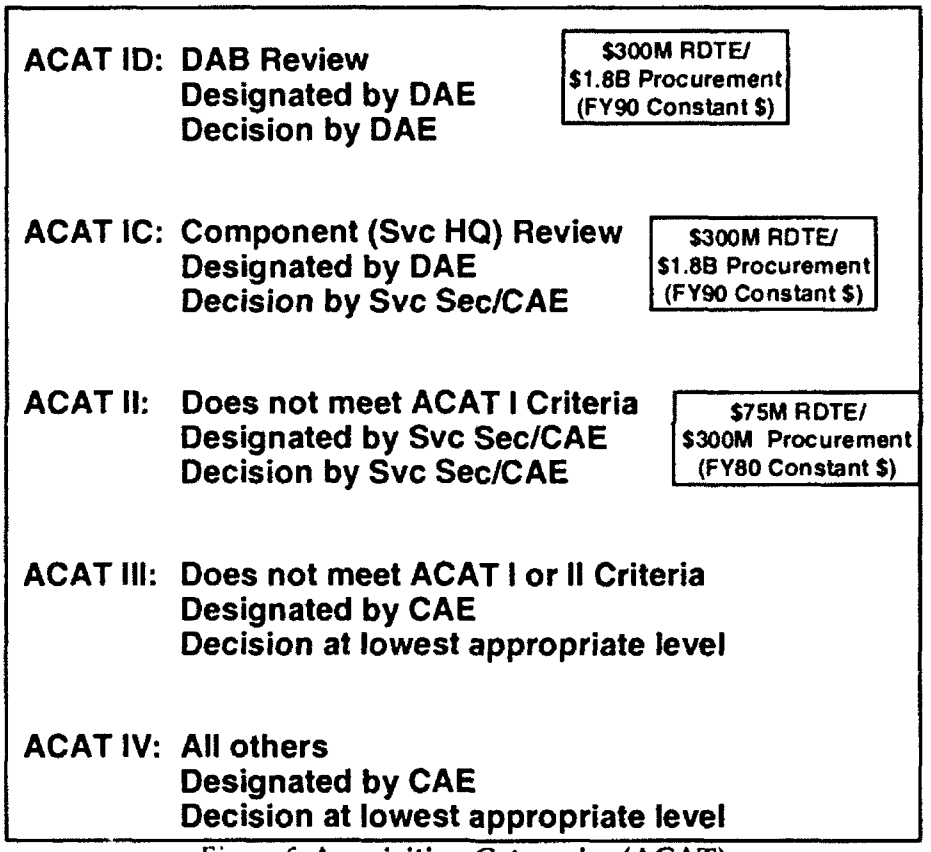

Figure 6, **Acquisition Categories (ACAT)**

Acquisition Category (ACAT) ID programs are first reviewed/approved by the Service, move forward to a DAB committee (see next paragraph) and then the DAB, with the milestone decision made by the Defense Acquisition Executive (the USD(A)). The ACAT IC and ACAT II programs are reviewed at the service level and milestone decisions are made at that level by the respective Service Acquisition Executive. Milestone decisions for certain ACAT III and IV programs *may be made at the Service Acquisition Executive level,*

but *most of these programs* are reviewed (and decisions are made) at the Systems Command (Navy and Marine Corps), Major Subordinate Command (Army) or Product or Air Logistics Center (Air Force) level.

Defense Acquisition Board Committees: Each ACAT ID is assigned to one (or more, as in the case of the Strategic Defense Initiative (SDI)) of the three standing DAB committees, ***Strategic and Space Systems,*** ***Conventional Systems,*** or ***Command, Control, Communications and Intelligence (C3I) Systems.*** In addition, a fourth committee, the ***Major Automated Information Systems Review Council (MAISRC),*** meets as a DAB committee whenever a management information system program exceeds the dollar threshold for a major defense acquisition program ($300 million in RDT&E, or $1.8 billion in procurement). The role of each committee, as depicted in Figure 7 below, is to give a program a thorough scrub to identify and resolve issues prior to the DAB. ***Committee Chairmen include the Director of Tactical Systems, who chairs the Conventional Systems Committee, the Director of Strategic and Space Systems, who chairs the Strategic Systems Committee, and the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (C3I) Programs, who chairs the C3I Committee. The ASD (C3I) also chairs the MAISRC.*** The respective committee chairman is responsible for making a recommendation to the DAB as to the program's readiness to proceed into the next phase of the acquisition life-cycle. The DAB Committees, in addition to reviewing programs at milestones, conduct periodic program reviews between milestones, analyze potential program

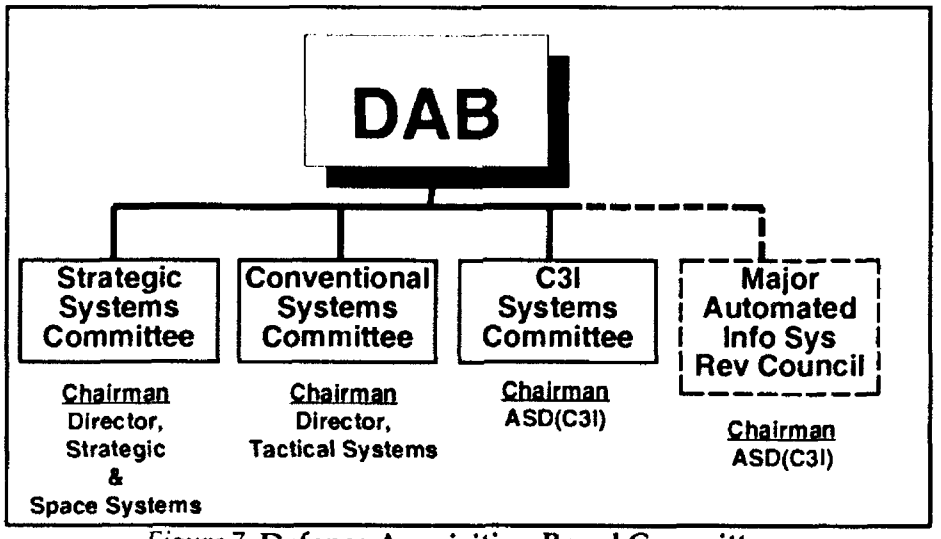

Figure 7, **Defense Acquisition Board Committees**

difficulties in time to help control costs, measure progress and make recommendations to the DAB.

Defense Acquisition Board (DAB): The *Defense Acquisition Board (DAB)* is the name given to the life-cycle, decision-making process through which major programs proceed from requirements and concept definition through production and deployment. It provides the formal oversight/management mechanism for many major defense acquisition programs (ACAT ID). The DAB replaced the former Defense Systems Acquisition Review Council and Joint Requirements Management Board review processes. Formal meetings are held at each milestone to review accomplishments of the previous life-cycle phase and assess readiness to proceed into the next phase. Typical issues addressed in the DAB proceedings include cost growth, schedule delays, technical threshold breaches, supportability issues, acquisition strategy, threat assessment, test and evaluation highlights, cooperative development/joint service concerns, manpower evaluation, and operational effectiveness/suitability. The ***DAB is issue-oriented***, and the result of a DAB review is a go or no-go decision from the USD(A), which is documented in an *Acquisition Decision Memorandum (ADM)*.

> ***Note that the DAB review (and USD(A) milestone decision) only approves a program to proceed; it has no direct role in the resource allocation process, although the USD(A) can direct the comptroller to withhold funds from a program.***

DAB members include:

- Under Secretary of Defense (Acquisition), *Chairman*
- Vice Chairman JCS, *Vice Chairman*
- Deputy Under Secretary of Defense (Acquisition)
- Director, Defense Research and Engineering (DDR&E)
- Component (Service) Acquisition Executives (CAEs) - Army, Navy, Air Force
- Comptroller, DOD
- Assistant Secretary of Defense for Program Analysis and Evaluation (ASD(PA&E))
- Director, Operational Test and Evaluation (OT&E)
- Chairman of Cognizant DAB Committee

The DAB (as a review body) reviews about 60 major defense acquisition programs (ACAT ID); another 60 or so ACAT IC programs are managed at the Component (or Service) Acquisition Executive level. Each service and defense agency has its own version of the life-cycle process which parallels the DAB process. Those parallel processes are used for managing programs that do not require OSD decisions, and for reviewing ACAT ID programs prior to a DAB. Following is a summary of the individual service level reviews and their respective chairmen (Service-level review authorities).

Service Level Review	Chaired By
Army Systems Acquisition Review Council (ASARC)	ASA (RD&A)
Air Force Systems Acquisition Review Council (AFSARC)	ASAF (Acquisition)
Program Decision Meeting (Navy)	ASN (RD&A)
Program Decision Meeting (Marine Corps)	ASN (RD&A)

4

REQUIREMENTS GENERATION PROCESS

Requirements generation is based on a continuing process of assessing the capabilities of the current force structure (people and materiel) to meet the projected threat, while taking into account opportunities for technological advancement, cost savings, and changes in *national policy* or doctrine. The output of this process, known as mission area analysis (MAA) (or mission area assessment), is a ***deficiency***, or a mismatch between current capabilities and the future (projected) threat. Once identified, deficiencies need to be resolved, and the first choice is a change in organization, doctrine or tactics, or perhaps additional training. These alternatives, often called ***non-materiel alternatives***, are investigated first because of their relatively low cost and ease (i.e., speed) of implementation. Should non-materiel alternatives prove incapable of resolving the deficiency, we are forced to look for ***materiel*** solutions. The overall requirements generation process is depicted in Figure 8.

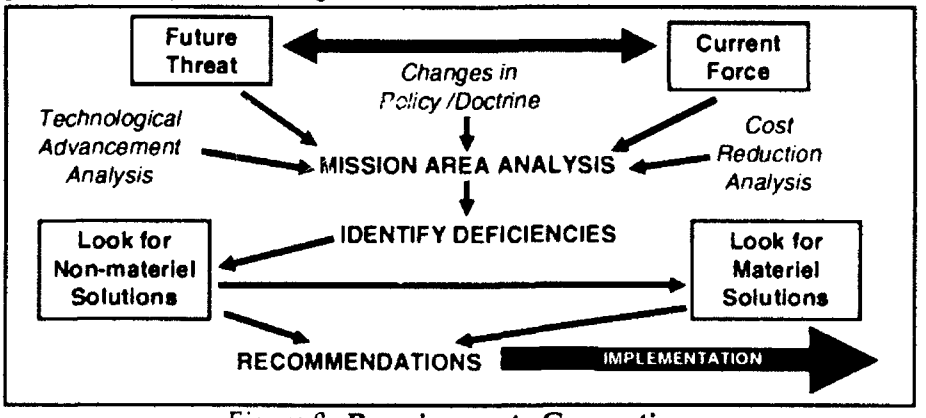

Figure 8, **Requirements Generation**

The *order of precedence* for consideration of materiel alternatives is as follows:

- Use or modification of an existing U.S. military system.
- Use or modification of an existing commercially developed or Allied system (Non-Developmental Item (NDI) approach).
- Cooperative research and development program with one or more Allied nations.
- New Joint-Service program.
- New Service-unique development program.

Once a determination is made that a materiel solution is required to satisfy a deficiency, a *Mission Need Statement* (MNS) is generated. **The Mission Need Statement documents the deficiency in *operational capability, not system specific,* terms.** The services have different organizations involved in the mission area analysis and MNS generation processes. **In the Army, the Training and Doctrine Command (TRADOC) is responsible for performing MAA and generating the MNS. Navy Fleet CINCs develop MNSs in coordination with the OPNAV staff. The Marine Corps Combat Developments Command (MCCDC) (specifically the Warfighting Center) does MAA and writes MNSs for the Marine Corps.** In the **Air Force, MAA is performed and MNSs are generated by the major operating commands,** Air Combat Command, Air Mobility Command, Air Force Space Command, and the Air Force component of Strategic Command. The processing/approval process for ACAT I level MNSs is illustrated in Figure 9.

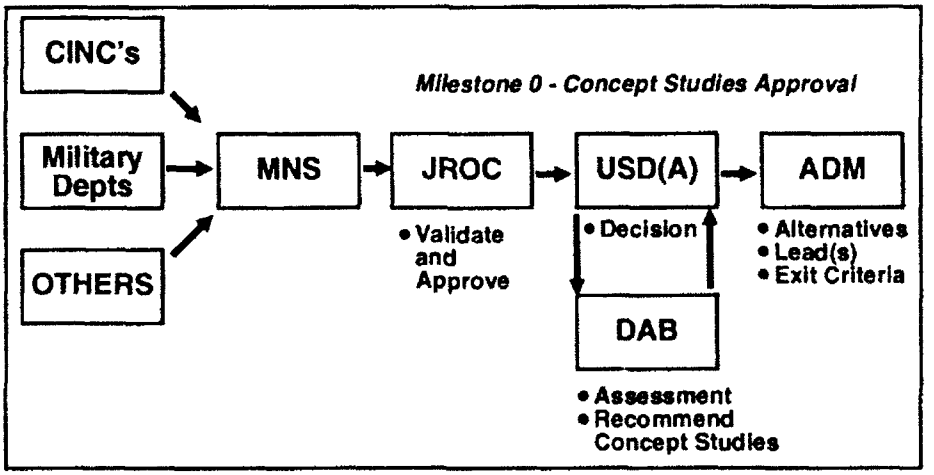

Figure 9, Mission Need Statement (MNS) Flow (Major Defense Acquisition Programs)

Mission Need Statements for potential Major Defense Acquisition Programs (ACAT I) are initially forwarded to the JROC for ***validation and approval.***

Validation is the process of documentation by an operational authority (other than the user) to confirm the identified need and operational requirement. As a minimum, the operational validation authority (the JROC for ACAT I level MNSs) reviews the MNS, confirms that a nonmateriel solution is not feasible, and assesses the joint service potential.

Approval is the formal or official sanction of the identified need and/or operational capabilities described in the MNS. Approval also certifies that the MNS has been subject to the processes contained in the DOD 5000 series and appropriate JROC Memoranda of Policy (MOPs).

Should the MNS be approved by the JROC, it will be forwarded to the DAB with a recommendation that concept direction studies be initiated. Based on a review by the DAB Committee and the DAB, the USD(A) makes the final decision as to whether or not the warfighting deficiency warrants the initiation of concept direction studies. The resulting Milestone 0 decision is documented in an Acquisition Decision Memorandum (ADM), signed by the Under Secretary of Defense for Acquisition (the DAE). The MNSs for potential ACAT I level programs which are disapproved are returned to the originating service/agency.

The validation and approval authority for ACAT II, III and IV mission need statements is the service (or defense agency) chief or CINC of the respective Unified or Specified Command (as appropriate). Approved MNSs for less than ACAT I level programs are forwarded to the component acquisition executive for action (determination of whether concept direction studies will be initiated).

5

LIFE-CYCLE MANAGEMENT PROCESS

The Under Secretary of Defense for Acquisition (USD(A)) uses the Defense Acquisition Board (DAB) process to manage the life-cycle of major acquisition programs. The services and defense agencies have similar processes to manage other than major programs, which are analogous to the DAB model. The *life-cycle process* consists of decision points, or milestones, and periods of time, or phases. The life-cycle of a weapon system program begins with planning before the program is approved or officially begins, and takes the program through research, development, production, deployment, support and, finally, disposal. Reference to "life-cycle" in the acquisition business, such as total life-cycle costs of developing, producing, deploying, supporting and disposing of a system to include all costs associated with the system, literally means *from cradle to grave*. Defense systems normally take from 12-15 years from identification of a warfighting deficiency to fielding of a system to satisfy that deficiency. *Completion of a program* often connotes deploying, or fielding, the system so that a predetermined number of operational forces have the system and the capability of using it, a point called *initial operational capability (IOC)*. During those 12-15 years the program is controlled through a series of steps involving periodic business and technical decisions. These decisions are scheduled into the overall strategy (i.e., *the acquisition strategy*) to acquire the system. They provide both the program manager and senior officials in the service/agency, and OSD officials such as the Under Secretary of Defense for Acquisition, USD(A), who is the Defense Acquisition Executive (DAE), the framework with which to review major programs, monitor and administer progress, identify problems and make corrections. This framework or life-cycle model was previously introduced briefly in Section 2 and is graphically depicted in Figure 10, on the foliowing page.

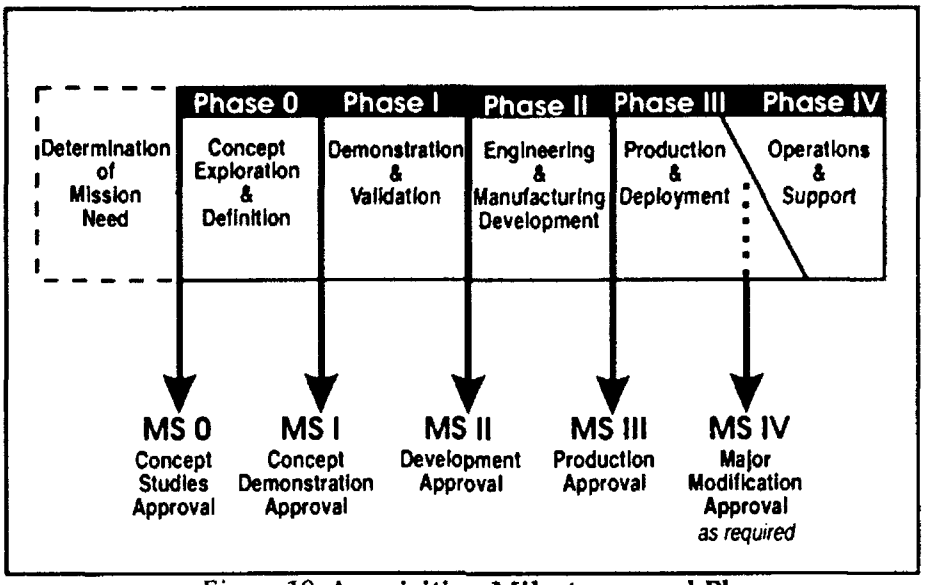

Figure 10, **Acquisition Milestones and Phases**

Note there is an overlap between the production and deployment and operations and support phases. Also note that the production of a system could last for many years, and that the support for a system must begin with the initial system fielding and continue throughout the system's life. The figure depicts a Milestone IV decision point which is a major modification decision point. **This milestone only applies to systems still in production.** Major upgrades to systems no longer in production must compete with other potential alternatives at a Milestone I decision point. Most programs follow the process illustrated above. However, if a new system essentially is an updated version of an existing one, or is one in which a proven or available technology or system is to be used (i.e., nondevelopmental items (NDI)), a program possibly could omit a milestone or phase or accomplish multiple phases or technical functions simultaneously (concurrency) to accelerate the process. This process is often referred to as *tailoring*. Milestone decisions for major programs are made by the USD(A) after program review by the respective Defense Acquisition Board Committee and Defense Acquisition Board.

Following is a brief discussion of each of the phases and milestones of the *life-cycle process model.*

Milestone 0, Concept Studies Approval. Authorizes entry into Concept Exploration and Definition (Phase 0). The Milestone Decision Authority (MDA) will specify the minimum set of alternatives to be examined, the lead organization and exit criteria for Milestone I.

Phase 0, Concept Exploration and Definition. Studies of alternative concepts are conducted. Phase is generally short (1-2 years in duration) and relatively low cost.

Milestone I, Concept Demonstration Approval. Approval for *initiation of a new program* and entry into Phase I, Demonstration and Validation. The Acquisition Strategy and Concept Baseline are approved. Exit criteria that must be accomplished during Phase I are established, and affordability constraints are identified.

Phase I, Demonstration and Validation. Phase is characterized by measures designed to reduce the risk of incorporating new and emerging technologies. Early prototyping and testing is possible. Phase is typically 2-3 years in duration, although programs involving prototype development can spend 5 years or longer in this phase (e.g., Air Force's Advanced Tactical Fighter).

Milestone II, Development Approval. Approves entry into Engineering and Manufacturing Development (Phase II). The Acquisition Strategy and Development Baseline are approved. Exit criteria that must be accomplished during Phase II are established. Low Rate Initial Production (LRIP) quantities are identified.

Phase II, Engineering and Manufacturing Development. Phase is focused on finalizing the system design and ensuring it is ready for production. Heavy emphasis on testing: developmental test and evaluation (DT&E) to ensure specifications are met, and operational test and evaluation (OT&E) to ensure the system is ***operationally effective***, and ***operationally suitable***.

Milestone III, Production Approval. Approval for entry into Production and Deployment (Phase III). Acquisition Strategy and Production Baseline are approved. Exit criteria that must be accomplished during Phase III are established.

Phase III, Production and Deployment. System is produced and delivered (along with support infrastructure) to field for operational use. System status is monitored to ensure product continues to meet the user's needs.

Phase IV, Operations and Support. System is employed by users. Support continues and product continues to be monitored to ensure user's needs are met.

NOTE: There is no milestone to provide approval for entry into Phase IV, Operations and Support. This phase overlaps Phase III.

Milestone IV, Major Modification Approval. Determines if major modifications to a **system still in production** are warranted. This

milestone is scheduled during Phase III/PhaseIV, Production/ Deployment/Operations/Support *as required.* Upgrades to systems no longer in production compete with other possible alternatives during a **new Phase 0**. Approval at a Milestone IV may return a program to an earlier phase of the life-cycle, depending on the technical complexity/maturity of the modification being considered.

6

RESOURCE ALLOCATION PROCESS

Resources for Department of Defense (DOD) activities, whether weapon systems or personnel costs, are provided through the resource allocation process. Resources include dollars (funds), material, people, facilities and equipment. The four phases of the *Resource Allocation Process (RAP)* are:

Phase 1 - Planning, Programming and Budgeting System (PPBS)
Phase 2 - Enactment
Phase 3 - Apportionment
Phase 4 - Execution

From the standpoint of developing, producing, fielding and supporting weapon systems, the PPBS is the focus of attention in the service and defense agency headquarters activities, while program managers and their Program Executive Officers (PEOs) are equally concerned with execution. Following is a brief discussion of these four phases.

PHASE I - PLANNING, PROGRAMMING and BUDGETING SYSTEM (PPBS)

The PPBS is the official management system which ultimately produces DOD's portion of the President's budget. It is unique to DOD and was originally introduced to the Department by Secretary of Defense Robert McNamara in 1962. The PPBS is a cyclic process with ***three distinct but interrelated phases, Planning, Programming and Budgeting***. It provides a formal, systematic structure for making decisions on policy, strategy and the development of forces and capabilities to accomplish anticipated missions. The PPBS provides

for a time-phased allocation of resources and submission of supporting documentation. *Its objective is to provide operational commanders with the best mix of forces and support in view of real fiscal constraints.*

The *Deputy Secretary of Defense (DEPSECDEF)* manages the PPBS with the advice and assistance of the ***Defense Planning and Resources Board (DPRB),*** which he chairs. The DPRB includes the Under Secretaries of Defense, the Assistant Secretary of Defense for Program Analysis and Evaluation (ASD(PA&E)) and the DOD Comptroller. Until 1986, the PPBS was an annual process through which DOD prepared its annual budget. Beginning in 1987 with submission of the first 2-year defense budget (for fiscal years 1988-89), PPBS itself became a biennial procedure. A complete PPBS cycle takes 24 months (February of year 1 to February of year 3). The PPBS also results in periodic updates (at least twice annually) to the ***Future Years Defense Program (FYDP).*** The FYDP reflects requirements for the outyears (years beyond the next budget year) based on DOD planning to meet national defense objectives. It represents those programs approved by the Secretary of Defense (via the DEPSECDEF and the DPRB). A brief description of each of the segments of the Planning, Programming and Budgeting System follows.

Planning. This phase is the responsibility of the Under Secretary of Defense for Policy (USD(P)). The planning phase is 9 months long, starting in February of each odd-numbered calendar year (the "off year" for programming and budgeting) and ending in October with the publication of the ***Defense Planning Guidance (DPG).***

Programming. This phase is managed by the Assistant Secretary of Defense for Program Analysis and Evaluation (ASD(PA&E)). It is the bridge between planning (with broad fiscal guidance) and budgeting (which meticulously prices each program element). It begins with the issuing of the draft Defense Planning Guidance in August of each odd numbered calendar year and ends with the submission of the service and defense agency ***Program Objectives Memoranda (POMs)*** in April of each even-numbered calendar year. Military departments, defense agencies and one Commander in Chief (CINC), (CINC, Special Operations Command) prepare POMs based on guidance contained in the DPG. The POM is the service (or defense agency) request for resources to accomplish its mission(s).

Budgeting. The Comptroller of the DOD is responsible for this phase. Based on OSD review/comment on the POMs, ***Budget Estimate Submissions (BESs)*** are prepared and forwarded (in September of the even-numbered calendar years) to OSD by the military departments

and defense agencies. Service and defense agency budgets are reviewed and the final DOD budget then goes to OMB to be incorporated into the President's budget submission to Congress, thus ending the budgeting phase.

The following table summarizes the responsible agency and key product of each PPBS segment.

SEGMENT	OSD ACTION AGENCY	PRODUCT
Planning	**USD(P)**	**Defense Planning Guidance**
Programming	**ASD(PA&E)**	**Approved Program Objectives Memoranda**
Budgeting	**Comptroller of DOD**	**DOD Portion of the President's Budget**

PHASE II -ENACTMENT

Enactment is the process through which the Congress reviews the President's budget, conducts hearings and passes legislation. Enactment begins when the President submits his annual budget to the Congress at the beginning of each calendar year (by law on the first Monday in February) and ends when the President signs the annual authorization and appropriation bills approximately 8 months later. ***Authorization*** approves programs and specifies maximum funding levels and quantities of systems to be procured. The ***Appropriations process*** provides the budget authority with which to incur obligations (i.e., obligate and expend (or outlay) funds). Even though DOD has submitted a 2-year budget to Congress since January 1987, Congress authorizes most programs and funding on an annual basis and appropriates funds on an annual basis. There are a few exceptions, the most notable being programs for which multiyear (rather than annual) procurements have been approved. *However, even multiyear procurements must be funded by annual appropriations.*

PHASE III - APPORTIONMENT

Once the authorization and appropriations legislation is signed into law by the President, funds are made available. ***Apportionment*** occurs when the Office of Management and Budget (OMB), provides these funds to DOD and other federal agencies. Subsequently, DOD ***allocates*** funds within the Department through action by the DOD

Comptroller and his counterparts in the services and defense agencies.

PHASE IV - EXECUTION

The execution phase occurs when appropriated funds are spent on defense programs. In other words, it is the process of *obligating* funds (awarding contracts) and *expending* funds (writing checks to pay bills).

The **four phases of the resource allocation process overlap** (See Figure 11).

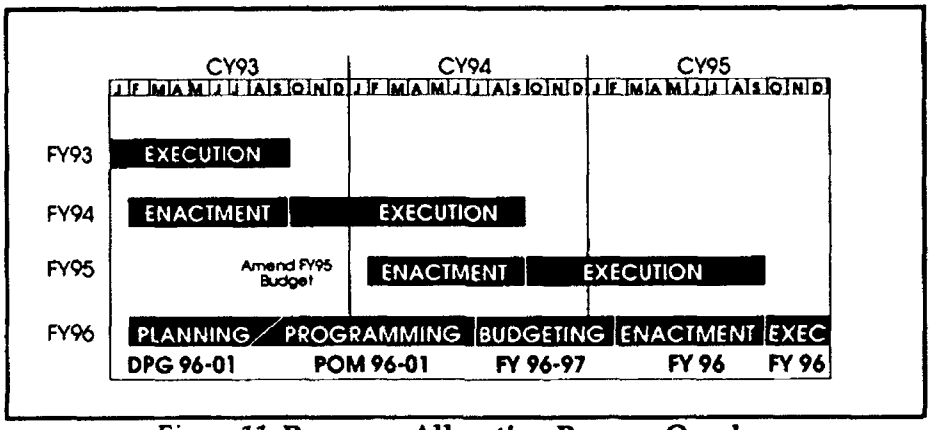

Figure 11, **Resource Allocation Process-Overlap**

The current fiscal year budget is being executed while enactment of next year's is underway, and programming for the following budget is in process. Planning is essentially a continuous process.

It is incumbent on program managers and other officials responsible for any aspect of resource allocation to be aware of the sequence of activities and to understand where they are in the RAP. Further, because the DAB and PPBS truly are independent processes, it is possible for a program to be approved to enter the next phase in the life cycle but have insufficient funds to execute that phase. Figure 12 compares and contrasts the PPBS and acquisition life-cycle process.

SYSTEM	FOCAL POINT	DRIVER	OUTPUT
Life-Cycle Management	USD(A)	Events/ Phases/ Milestones	Proceed to next phase
PPBS	DEPSECDEF	Biennial/Calendar	Funding

Figure 12, **Summary-DOD Life-Cycle and Resource Management Systems**

Note that the PPBS is a ***calendar-driven system*** and that the acquisition life cycle is ***event-driven***. Avoiding a mismatch or disconnect between programmatic requirements and available funding demands close attention on the parts of program managers and their respective Program Executive Officers.

7

BUSINESS AND TECHNICAL ASPECTS OF SYSTEMS ACQUISITION

Management of the systems acquisition process not only involves mechanisms for decision making, funding and responding to congressional oversight, but also the daily tasks of managing the business and technical aspects of the program. The acquisition program manager (PM) must attend to frequent external influences of oversight and funding, many of which are beyond his direct control.

Business and Financial Functions. The procurement contract for goods and services is the heart of the acquisition process. Business and financial functions, the latter including management of acquisition funds, include:

- Acquisition plan (the contracting "checklist") and acquisition strategy (the overall "road map")
- Acquisition Program Baseline
- Contract types, award and monitoring
- Cost estimating
- Formulating input for the Program Objectives Memorandum (POM), the budget and other programmatic or financial documentation in support of the Planning, Programming and Budgeting System (PPBS)
- Request for Proposal preparation
- Source selection
- Contractor surveillance
- Program office administration and personnel

- Budget execution (obligating funds and paying the bills)
- Technical data rights
- Total quality management.

The acquisition planning phase of the contracting process includes the system requirement (need) determination, requirement definition and specification, and procurement request. Once potential contractors are notified through the procurement request, the source-selection process moves through solicitation, evaluation of proposals, negotiation and contract award. The contract is then administered and monitored for compliance to ensure product(s) are delivered as agreed to.

Technical Management Functions. Technical management is a broad term including the management of a totally integrated effort of system engineering, test and evaluation (T&E), production and logistics support over the system life-cycle. Its goal is timely deployment of an effective system, sustaining it, and satisfying the need at an affordable cost. Technical management involves balancing a system's cost, schedule and effectiveness. Cost includes funds required to design, develop, produce, operate and support and dispose of a system. Schedule includes the time it takes to design, develop, produce and deploy a fully supported system. Effectiveness is the degree to which a system can be expected to achieve a set of specific mission requirements. Technical management includes:

- System/product definition process (establishing the baseline)
- Acquisition Program Baseline (APB)
- Design engineering
- Systems engineering (putting the pieces together)
- Computer resources, including software
- Integrated logistics support
- Developmental Test and Evaluation (DT&E)
- Operational Test and Evaluation (OT&E)
- Reliability, availability and maintainability
- Transition from development to production
- Standardization and specifications
- Configuration management
- Producibility

- Manufacturing process and controls
- System or product disposal
- Pre-planned product improvements
- Total quality management.

Technical management can be described as an ***input, process and output***. The ***input*** is the need or requirement. The ***process*** is how the technical activities are managed. The ***output*** is the end item. Linking this is a ***feedback loop*** which improves the end item based on customer (user) comments and recommendations.

PROGRAM MANAGEMENT IN DEFENSE ACQUISITION

Department of Defense (DOD) policy calls for the systems acquisition process to be directed by a responsible manager under the concept of program management. The terms program and project are used interchangeably. The role of the program manager (PM), or project manager, is to direct the development, production and initial deployment (as a minimum) of a system. This must be done within limits of cost, schedule, performance and logistics support objectives approved by the Under Secretary of Defense for Acquisition (USD(A)) or head of the Military Department (service) or defense agency, or designee. The PM's role, then, is to be the agent of the service or defense agency in the management of a weapon system acquisition program within the defense acquisition process.

Definition of Program Management. ***Program Management*** may be defined as:

> *A special management approach used to provide centralized authority and responsibility (on a team or task-force basis) for the priority accomplishments of a specified project or task. This approach involves the timely integration of divergent specialties and activities into coherent, coordinated management structure.*

Program management must take into account *diverse interests and points of view.* Second, it *facilitates tailoring the management system and techniques to the uniqueness of the program.* Third, it *represents integration of a complex system of differing but related functional and discipline areas which must eventually work together to achieve program goals.*

Program Manager's Perspective. The effective PM should have the "big picture" perspective of his program, including in-depth knowledge of the interrelationships among its elements. An effective PM:

- Is a leader and a manager, not primarily a task "doer"
- Understands the requirements, environmental factors, organizations, activities, constraints and motivations impacting his program
- Knows and is capable of working within the established framework, managerial systems and processes that provide funding and other decisions for the program to proceed
- Comprehends and puts to use the basic skills of management—planning, organizing, staffing, leading and controlling—so people and systems harmonize to produce the desired results
- Coordinates the work of defense industry contractors, consultants, in-house engineers and logisticians, contracting officers and others, whether assigned directly to the program office or supporting it thorough some form of matrix arrangement
- Builds support for the program and monitors reactions and perceptions which help or impede progress
- Serves both the military needs of the user in the field and the priority and funding constraints imposed by managers in the Pentagon and service/defense agency headquarters.

Why Is Program Management used In Defense Acquisition? Program management provides a ***single point of contact*** who is the major force for directing the system through its evolution, development, production and deployment. The PM, while perhaps being unable to control the environment, has management authority over business and technical aspects of a specific program. The **PM has only one responsibility—managing that program**—and accountability is clear. For defense acquisition programs, industry follows a process similar to that used by the DOD. Often a contractor will staff and operate the program office paralleling that employed by the military program office for whom they are performing their contractual effort.

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Although this second edition retains much of the material contained in the 1989 version, this edition has been completely revised and updated to reflect the latest Department of Defense acquisition policies and procedures as described in the 23 February 1991 "DOD 5000 series" of directives and instructions. The pamphlet also contains a new section on the Requirements Generation Process, one of the three major decision-making support systems with which the successful program manager must become familiar.

The pamphlet was designed to be both a quick study guide to refresh the skilled and experienced acquisition management professional as well as an introduction to the world of systems acquisition management for the newcomer. It focuses on Department of Defense-wide applications rather than on the details of how a specific weapons system program is managed.

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